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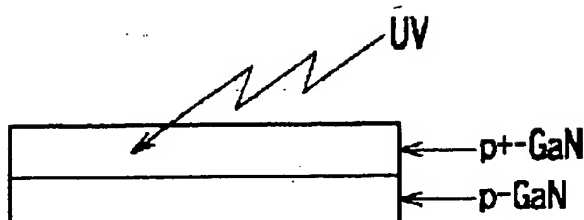
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TITLE : SEMICONDUCTOR DEVICE AND ITS
MANUFACTURE



ABSTRACT : PROBLEM TO BE SOLVED: To provide a semiconductor device having a gallium nitride-based compound semiconductor layer in which a dopant is simply, extremely efficiently, and effectively activated and a method for manufacturing the device.

SOLUTION: A dopant is efficiently activated in a gallium nitride-based compound semiconductor layer by cutting the linkage between the dopant and hydrogen by irradiating the semiconductor layer with ultraviolet rays. When the semiconductor layer is irradiated with the ultraviolet rays, the effective carrier concentration in the layer also increases, because holes which act as a donor and compensate a P-type layer in the semiconductor layer are reduced. In addition, when the semiconductor layer is heated within a temperature range from 50°C to 400°C which is lower than the conventional example when irradiating the semiconductor layer with the ultraviolet rays, the dopant can be activated sufficiently. It is desirable to adjust the center wavelength of the ultraviolet rays to ≤ 380 nm and to perform the irradiation in a nitrogen atmosphere.

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